CHAPTER II

MARKETING METHODS AND PRACTICES - PADDY & RICE
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METHODS and practices of agricultural marketing are deeply influenced by (a) the available marketing infra-structural facilities and (b) the production of farm produce in a particular region. Vidarbha region of Maharashtra has dual characteristics in this regard. Of the 8 districts comprising Vidarbha, 6 are cotton growing and only 2 are rice growing districts. Bhandara, which is selected for intensive study is a rice-growing district, therefore, greater emphasis has been given to the discussion related to the marketing of rice only.

Cotton is a cash crop. The methods and practices of marketing a cash crop is different to some extent from cereals like rice. Vidarbha is the main producer of long staple cotton. Within Vidarbha itself only four districts of Berar viz. Amraoti, Akola, Buldhana and Yeotmal grow most of the Vidarbha cotton. Wardha and Nagpur are the other two districts where cotton is grown as a major crop. Being a cash-crop
cotton is grown only for sale. Local consumption is almost nil. Formerly, Bombay was the main marketing centre for Vidarbha—Cotton. But its importance has declined and new marketing centres have emerged particularly in Vidarbha. These centres are Saoner, Katol and Nagpur in Nagpur District, Hinghanhat, Pulgaon and Wardha in Wardha district, Arvi and Yeotmal in Yeotmal district, Akola, Akot, Khamgaon in Akola district, Amravati, Murtizapur and Achalpur in Amravati district and Chikhali, Mehkar and Buldhana in Buldhana district.

Cotton is marketed by growers either in village markets or in the nearby assembling markets. They sell cotton through small traders in the village markets. In the assembling markets or regulated markets, they sell their cotton directly to the traders or through Adatyas or commission agents. The traders gin and press the purchased raw cotton into standard size of bales and sell the bales to the wholesellers of the terminal markets or to the cotton mills directly. An important feature of marketing of cotton is the existence of middlemen who hold key positions in the marketing process. The share of the middlemen in total market charges is quite high. (1)
Manipulation of prices by the middlemen and delay in payments to the farmers is yet another serious problem facing the Vidarbha cotton growers. Apart from all these setbacks the cotton growers of all the cotton districts are availing of better marketing facilities than the rice growers of Bhandara district.

MARKETING OF PADDY AND RICE

Rice is a cereal crop. Bhandara district is the main grower of rice in the State of Maharashtra. Inadequate infrastructural facilities for marketing and low per hectare productivity are the main features of the district. Keeping these characteristics in mind it is proposed to discuss here the methods and practices relating to marketing of rice only.

Kharif and rabi are the two main cropping seasons in the district. Kharif paddy is mostly sown in the month of June-July in the district. The crop is reaped in the month of November-December. Marketing functions start at the point of harvesting of paddy. The harvesting operations are done mostly by cultivators and their family members. On larger farms hired
labour is also used. Wages are generally paid in kind. After being reaped, the crop is collected at a dry and clean place. Thereafter threshing and winnowing operations are completed and paddy is gathered in gunny bags. Threshing is done by beating the sheaves with a stick. In some cases, bullocks are used for treading the sheaves laid on the threshing floor. The gunny bags containing paddy are then brought to the market for sale.

There can be no marketing operation unless there is a marketable surplus in the produce. Marketable surplus may mean that part of agricultural production of the year which is disposed of by the farmer directly or indirectly. Marketable surplus may also mean such quantity of agricultural produce, as is left with the farmer after meeting his requirements for farm needs, labour payments in kind and family consumption for the whole year. The term 'marketed surplus' is different from marketable surplus. The quantity of produce which is actually sold in the market by the farmer, irrespective of his family needs and other requirements, is known as marketed surplus. The marketed surplus of a farmer may or may not be equal to his marketable surplus.
Marketable surplus has been dealt with both 'subjectively' and 'objectively'. Subjectively, it is the residual quantity arrived at after retention by the farmer for his needs. Such as retention for home consumption, seed requirements, payment of wages in kind, disbursements to villages artisans for services, rendered and for live stock feed. Objectively, marketable surplus is the market arrivals of food grains, though it is conceded that village sales and barter transactions as well as other deals which do not pass through the market are also important for this calculation.(2) Estimation of marketable surplus is one of the important factor for analysing market behaviour and prices. But its accurate estimation is difficult because of non-availability of correct data. The food grain inquiry committee recommended that the flow of the marketable surplus of food grains should be continuously studied to frame a sound policy of price control. Getting accurate and reliable information about marketable surplus in India is a difficult task. Indian farmers often sell a considerable portion of their produce at the time of harvest to meet their immediate demand of money for payment of land revenue, loans, and for other domestic purposes. Quite often they do not keep adequate quantity
of food grains even for their domestic uses. Later, when they need food grains they purchase from the local markets. In this situation the released quantity of food grains by the farmers is not the actual marketable surplus. The Indian Council of Agricultural Research has estimated 31.4% of the total rice produced in the country as marketable surplus. (3)

The difficulties encountered in estimating marketable surplus are several. The more important of them are: regional differences of crops, demarcating of old crop arrivals, double counting, underestimation with a view to avoid payment of sales tax and market fees, disposal of produce in outside the market yard etc. Other factors which influence determination of marketable Surpluses are size of holdings, standard of living of the farmers, availability of transport facilities, market prices, requirement of seeds, feeding of labour and livestock, requirement for family consumption, farmers need for cash, using objects of the production, availability of storage and other marketing facilities, total quantity of production, financial position of the cultivators, Government policies etc.
The marketable surplus and disposal of paddy in Bhandara district for all the three categories of sample farmers viz. big farmers (F-1), medium farmers (F-2) and small farmers (F-3) have estimated under this study. The result of the analysis is shown in table 2.1

**Table 2.1**

MARKETED SURPLUS & DISPOSAL OF PADDY BY SAMPLE

FARMERS IN BHANDARA DISTRICT

DURING 1982-83.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Big Farmers (F-1)</th>
<th>Med. Farmers (F-2)</th>
<th>Small Farmers (F-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty.in % to</td>
<td>Qty.in % to</td>
<td>Qty.in % to</td>
</tr>
<tr>
<td></td>
<td>Qtls. total Prod.</td>
<td>Qtls. total Prod.</td>
<td>Qtls. total Prod.</td>
</tr>
<tr>
<td>A) Disposal of production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Wages</td>
<td>840</td>
<td>29</td>
<td>240</td>
</tr>
<tr>
<td>ii) Seeds</td>
<td>230</td>
<td>8</td>
<td>80</td>
</tr>
<tr>
<td>iii) Retention for home</td>
<td>480</td>
<td>17</td>
<td>345</td>
</tr>
<tr>
<td>consumption</td>
<td></td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>iv) Others</td>
<td>65</td>
<td>2</td>
<td>Nil</td>
</tr>
<tr>
<td>Total (i) to (iv)</td>
<td>1615</td>
<td>56</td>
<td>665</td>
</tr>
<tr>
<td>B) Marketed Surplus (Sold in</td>
<td>1265</td>
<td>44</td>
<td>445</td>
</tr>
<tr>
<td>market)</td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Total production</td>
<td>2880</td>
<td>100</td>
<td>1110</td>
</tr>
</tbody>
</table>

Source: Computed from information collected during field investigation by the author.
MARKETED SURPLUS AND DISPOSAL OF PADDY BY SAMPLE FARMERS IN BHANDARA DISTRICT

INDEX
- DISPOSAL & RETENTION
- MARKETED SURPLUS

PRODUCTION IN QUINTALS

CATEGORY OF SAMPLE FARMERS

F-I

F-II

F-III
As shown in the table (2.1) the marketed surplus for the three different types of farmers viz. F-1, F-2, and F-3, have been estimated 44%, 40% and 35% respectively. The average marketed surplus for all categories of farmers in the district come to 39.6% of the total production of all categories of farmers. The proportion of distress sales have been also estimated, which come to 29 quintals i.e. 1% of the total production for big farmers (F-1), 44 quintals i.e. 4% of the total production for medium farmers (F-2), and 49 quintals i.e. 7% of the total production for small farmers (F-3). After deducting distress sale from marketed surplus the marketable surplus arrives at 43%, 36% and 28% for F-1, F-2 and F-3 categories respectively. Thus the marketed surplus is higher than the marketable surplus for all the categories of farmers. As regards distress sale, it is understandably higher in F-2 and F-3 categories than the F-1 category.

Small and medium farmers mostly sell their paddy immediately after harvesting just to meet their cash requirements. On the other hand big farmers generally do not sell their paddy immediately after harvesting. They are in a position to hold stock in anticipation of future higher prices.

As shown in table 2.1, the farmers of all categories in the district dispose of 40% of their
TRADITIONAL CHANNELS OF PADDY AND RICE MARKETING IN 
BHANDARA DISTRICT

Diagram - 3
produce to different agencies in the market. The marketed surplus that leaves farms, moves from small village market to terminal markets through various intermediaries such as the village trader, commission agents, brokers etc. In the beginning, it moves in the form of paddy. Thereafter, it moves to rice millers for processing. The processed rice ultimately reaches into the hands of the consumer. This marketing process is commonly known as the traditional channel of paddy and rice marketing. A large number of middlemen and other market functionaries are involved in the traditional channel. They took the lion share of the amount which a consumer paid. It may be easily understood through the diagram 2.1

It is clear from the diagram (2.1) that retention is made for various payments, for seeds and for domestic requirements. The picture also shows that the sold marketed surplus moves into the hands of various agencies involved in village markets, regulated markets and other unregulated markets of nearby areas. In village markets the village traders purchase paddy from growers and send it to the local or nearby huller mills or rice mills for processing. Village consumers
also purchase paddy directly from growers and get it processed through huller or sheller mills. The labourers who receive payment in kind also take their paddy to nearby huller or sheller mills for processing. Paddy growers also sell their produce to local commission agents or brokers and rice millers. Commission agents and brokers move paddy on to rice mills which process it into rice. The processed rice is exported to various intermediaries involved in grain business in different terminal markets within and outside the State of Maharashtra. Some amount of marketed surplus also reaches into the hands of wholesalers and rice millers through regulated markets. Quite often big farmers keep their paddy for 4 to 6 months in Central and State warehouses, waiting for higher prices. When the prices are attractive, big farmers release their stock through commission agents in the regulated market. The Government and co-operative agencies also collect their quota of paddy from the market channel.

A word about assembling of rice

Assembling means collecting paddy from different producers at a fixed place. It is one of the important processes of agricultural marketing. Through this process, the grower converts his produce into cash. The agencies
involved in this process in the district are the following:

1. Grower
2. Farmers, who collect paddy from other cultivators
3. Big farmers
4. Brokers and commission agents
5. Village traders
6. Travelling or Itinerant merchants
7. Wholesale merchants
8. Professional dehuskers
9. Private and Co-operative rice mills
10. Co-operative marketing societies

One of the important characteristics of assembling in the district is that paddy is assembled in larger quantities than rice at different assembling centres. Presently, as much as 90% of the marketed surplus is assembled in the form of paddy. Earlier, the percentage of rice in the total assembling was higher. But it has decreased over the last two decades. A large number of rice mills have been opened in the co-operative and private sectors in rural and urban areas. Farmers prefer to sell paddy instead of rice. The traditional methods of dehusking and handpounding are found uneconomical as compared to rice milling. Even for their domestic use, farmers prefer to go to
rice mills for dehusking. Commission agents and rice millers also prefer to purchase and sell paddy rather than rice because they want to export par-boiled rice which can be processed only in rice mills.

**Farmer:**

Quite often paddy growers themselves take to the collection of paddy from other small growers. When sufficient quantities of paddy are collected, they take it to the nearby secondary or regulated markets for selling. It is their seasonal business. Big farmers too are often engaged in such types of assembling activities as their regular business. According to one estimate the share of growers and big farmers for assembling of paddy came to 22.5% of the marketed surplus in total assembling. (4)

**Village traders, wholesellers and commission agents:**

A village trader holds an important position in the rural areas. They provide financial and other assistance to the needy farmers. In terms of loan repayments, they also accept paddy and other agricultural commodities. They also purchase paddy and rice from the farmers and sell them to other intermediaries viz. wholesellers, commission agents etc. directly on profit.
The wholesale merchants had a key position in the process of assembling. Brokers, commission agents, itinerant traders are found everywhere in the market and they play vital roles in assembling. They purchase paddy from producer-sellers on behalf of wholesalers and rice millers and earn commission for their services. Itinerant traders move from village to village purchasing paddy and rice from the farmers as well as from huller mill owners. They also purchase hand-pounded rice. Wholesalers, whose offices are located generally at terminal market centres also own rice mills. They sale rice to different terminal markets within the state as well as outside it. The Indian Council of Agricultural Research has estimated the share of village traders and wholesale traders at about 15% and 19% respectively of the marketed surplus of the producers. (5)

Rice Mills and marketing co-operatives:

Private and Co-operative rice mills also contribute to some amount of assembling and process paddy charging the fixed rates. They purchase paddy directly from growers and other agencies for milling. Thereafter they sell the milled rice in the local market and different terminal markets. Most of the
Private rice mills are owned and run by wholesale traders. In Bhandara district the private rice mills are found to be working more efficiently than the co-operative rice mills. The proportion of rice mills (private and co-operative) in assembling was estimated at 13% only.

The role played by marketing co-operatives in assembling of paddy in the district is negligible. They participate in assembling as agents of the state marketing federation. They purchase paddy for the Federation under the Monopoly Procurement Scheme of the State Government.

The assembling markets of Bhandara district may be broadly classified in to the following categories-

1. Primary or local markets
2. Secondary or unregulated markets
3. Regulated markets
4. Terminal markets

Primary or local markets are commonly known as 'HATS'. Producers residing within a radius of 5 to 15 kilometres gather in these markets to dispose of their small surpluses and to buy articles of domestic use. The market may be weekly, bi-weekly or daily. The days are fixed for weekly or bi-weekly markets. Itinerant merchants and other small traders and
intermediaries assemble at these markets and do business specially during harvesting seasons. The volumes of sales transactions are very high during harvesting seasons. The weekly and bi-weekly markets are held in open without any sheds. Storage, transportation and other necessary facilities are not available there. Often the Gram Panchayats take the responsibility of organising these markets in their respective areas. They collect rent or fees from traders. Some village markets in the district are managed by Zilla Parishad also. Bhandara district has 68 such primary village markets. Kamtha, Dasgaon, Kati, Adasi, Madegaon, Khamari, Sihora, Mundikota, Nawegaon, Dongargaon, Amgaon are the main markets of the district.

Secondary markets functioning within a radius of 20 to 40 kms. are known as unregulated markets or wholesale mandis. These markets are situated in semi-urban areas and they are held daily at fixed places. The volume of transaction in these markets is quite high. Marketing facilities there are also better than in village markets. They are well connected by roads. Some of them are connected by railways too. Some of the important secondary markets in the district are
Deori, Salekasa, Kati-Birsola, Sadak-Arjuni, Palandur, Saundad, Dongargaon, Sakritola, Goregaon and Adyal.

There are nine regulated markets in the district located at Gondia, Bhandara, Lakhni, Lakhandur, Pawni, Arjuni (Morgaon), Amgaon, Tirora and Tumsar. Regulated markets are governed by the State Marketing regulation Act. Regulated markets are intended to ensure better marketing facilities and protect farmers' interests by reducing opportunities for malpractices. These markets are managed by duly elected market committees.

Much larger quantities of paddy and rice are assembled in terminal markets. Terminal markets also known as wholesale markets, are located at important business centres in the district. These markets have well organised storage, transportation and other marketing facilities. Gondia is the biggest terminal market in the district. Tumsar, Bhandara, Tirora, Amgaon, Pawni, Sakoli are other important terminal markets. It is from these markets that plain and parboiled rice is exported to terminal markets in other parts of the country.
### TABLE 2.2.

**CATEGORYWISE PERCENTAGE OF SALE BY PRODUCERS**

**IN DIFFERENT ASSEMBLING MARKETS**

**IN BHANDARA DISTRICT**

<table>
<thead>
<tr>
<th>Name of Assembling Market</th>
<th>Category of Farmers</th>
<th>Total (F-1+F-2+F-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-1 %</td>
<td>F-2 %</td>
</tr>
<tr>
<td>1. Village Markets</td>
<td>56</td>
<td>50</td>
</tr>
<tr>
<td>2. Secondary or Unregulated Markets</td>
<td>30</td>
<td>37</td>
</tr>
<tr>
<td>3. Regulated Markets</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>4. Marketing Co-op. (Under Monopoly procurement Scheme)</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total                     | 100   | 100   | 100   | 100   |

Sources: Computed from information obtained through field work by the author.

The most important aspect that can be seen in the table 2.2 is that regulated markets and marketing co-operatives have failed to attract farmers of all the three categories. Regulated markets and marketing co-operatives have been organised primarily to protect farmers' interests and to prevent malpractices.
And yet the farmers have shown reluctance to bring their produce for sale through these agencies. The bulk of the districts agricultural produce is disposed of at the level of village and unregulated markets.

About the intermediaries our field study revealed that some 80% of the traders operated their own business as commission agents. Their share of individual and commission business accounted for 40% and 60% respectively. Other findings of the study are 90% of the traders were licence holder of the regulated markets; 70% of the traders had their business organised as partnership firms and 30% as sole proprietorship; individual traders had invested capital ranging between Rs. 50,000 to Rs. 2 Lakhs, and earned profits between 2 to 10 per cent, depending upon the nature and volume of their business. Their average annual turnover came between Rs. 5 to Rs. 25 Lakhs.

Nearly 50% of the purchases of paddy by traders is done during the months of Feb., March and April. The purchases taper off over the subsequent months. Selling continues, however, over the whole year. Traders sell food grains to local retailers and export rice to other states like Kerala, Tamil Nadu etc. They import wheat and pulses from Madhya Pradesh and Gujrat. The traders who buy paddy are commission agents known as 'Adatiyas'. About 80% of these Adatiyas have their
own godowns. Quite often they also avail of the storage facilities provided by the State and Central Warehousing Corporations. The Adatyas also lend money to needy farmers. But their importance as a source of finance has tended to decline. Less than half of the Adatiyas functioning in the district were found to be engaged in money lending business.

Bhandara district exports rice (particularly par-boiled rice) to states like Kerala, Tamil Nadu, Bihar and West Bengal. Condia and Tumsar are the main exporting centres of the district. These exports are the wholesellers and the rice millers. There is great demand for par-boiled rice in the Southern States. Over the past 15 years several big parboiling rice mills equipped with modern automation techniques have been installed in the district, particularly at Condia. Many private rice mills which do wholesale business in rice also do the work of processing par-boiled rice for export. The steadily increasing rice exports from the district is a very lucrative business especially when exports from the district is unrestricted. Export of paddy is restricted but not the export of rice which is totally free. About 80 to 90% of total production of
of coarse paddy is par-boiled and exported to other states. The percentage of local consumption is very low which ranges between 2 to 25% only. (7) Authentic information on rice exports is not available. All the par-boiling plants are in the private sector. The law does not require compulsory registration of export business in rice with Government agencies. Rice Mills, private traders, therefore, carry on their export business privately, often avoiding detection by tax authorities. It is therefore, important that private agencies engaged in the export trade of par-boiled rice should be compelled to furnish full and accurate information about the volume and value of the export trade in rice for the district. Also, the possibility of involving marketing co-operatives on this Lucrative trade should be explored.

One of the important findings of the study is that the farmers of all categories (F-1, F-2, & F-3) prefer to sell their produce through commission agents rather than through marketing co-operatives or personal direct selling. This is shown in the table 2.3 below:
### Table 2.3

**Preference shown in selection of modes of selling**

<table>
<thead>
<tr>
<th>Modes of Selling</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-1</td>
<td>F-2</td>
</tr>
<tr>
<td>1. Direct Selling (to consumers, rice millers, &amp; traders)</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>2. Through Commission Agents</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>3. Marketing Co-operatives</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

Source: Computed from the information obtained through field work by the author.

As the table 2.3 above shows, 68% of the total sample cultivators prefer to sell their produce through commission agents. Only 7% have shown inclination in to sell through marketing co-operatives. Those interested in direct personal sale to rice mills etc., constitute only 25% of the sample. The reasons given for the preference shown in favour of commission agents are (a) offer of fair prices, (b) satisfactory arrangements provided for overnight stays with the bullock carts etc., and (c) offer of credit facilities in situations of emergency. If
marketing cooperatives have to increase their effectiveness, they would have to make greater efforts to win the confidence of the farmers by offering them facilities similar to those offered by commission agents and something more. The commission agents (Achatiyas) still dominate the scene and it may not be easy to replace them by marketing cooperatives in the short run.

The second important stage in the marketing of food grains is processing. Processing means the procedure of changing raw material into finished products. Paddy, wheat and tur are some of the important types of food grains that need processing. Important processing activities include winnowing, threshing, husking, parboiling, polishing, grinding etc. Processing of paddy in particular involves the activity of removing the outer shell (which has no food value) that covers the starchy kernel. The paddy consists of 3 parts (a) the bran or the outer layer, (b) rice or the inner part, and (c) the germ. Milling removes bran or the outer layer, and polishing destroys at least to a certain extent the aleurone layer of the inner part. Aleurone layers are rich in proteins and other nutrients. More polishing means greater loss of these proteins and nutrients. The rice kernel inside paddy is the consumable product and not paddy itself. Rice is the processed form of paddy. Rice processing can be done manually or with the help of power-driven machines. Manual processing is called
"hand-pounding" and machine processing is known as "machine milling" of rice. We have thus two methods of rice processing, viz., hand pounding and machine milling.

Hand pounding is the old and traditional method of processing of rice. There was a time when hand pounding of rice was an important village industry. Nearly three fourths of the total rice produced in India was accounted for by hand-pounding. But the situation now is just the reverse. Now, people both in rural and urban areas prefer milled rice to hand pounded rice. It is only in remote areas where milling facilities are not available that hand pounded rice is consumed. Although hand pounded rice has greater nutritive value than milled rice, the farmer is fast losing ground to the latter for two important reasons: (i) hand pounding is a wasteful process of removing the bran; greater quantities of rice is broken in hand-pounding than in milling, and (ii) hand pounding is uneconomical because of high cost of manual labour involved. It is for these reasons that even the rural folk (who could do hand pounding themselves) prefer to go to rice mills for processing.

**RICE MILLING:**

The machine milling is a modern method of
processing of rice and is very popular in the district. Two types of machine are generally used for rice milling—(a) Huller, and (b) Sheller. Processing units which use only huller machines are known as 'Huller Mills'. They are situated mostly in villages and semi-urban towns. Processing units which use both huller and sheller machines are popularly known as 'Rice Mills'. It was at Tumar that the first rice mill (Huller Mill) was set up in 1921. Presently, 437 rice mills of different types are functioning in Bhandara district. Some rice mills have also erected par-boiling plants. They are known as parboiling rice mills or 'Urban Mills'. These mills are located mainly at terminal market centres.

The process adopted by the huller mills for converting paddy into rice called 'hulling'. The single huller machines are used particularly in rural areas. They are driven on electric or diesel motors of 5 to 15 horse power. Some huller mills are also equipped with an automatic system. Such types of mill are found in big township or mandies such as Gondia, Tumsar, Sakoli etc. But single huller machines are uneconomical due to high percentage of broken rice produced by them. For this reason, the use of double huller machines are preferred. On the other hand sheller mills are bigger than huller
mills. Dehusking, polishing, winnowing and seiving are automatically performed in a sequence and rice, husk, bran and other products are delivered seperately. The breakage of rice in sheller mills is the minimum. Some rice mills in the district used both sheller and huller machines for dehusking and polishing. Such types of mills are located in Gondia, Tumsar and Amgaon tahsils. Some mills have also adopted modern techniques of milling by installing rubber roll sheller machines.

Par-boiling is another process of dehusking. Its use is becoming popular because it reduces the breakage of rice during milling. Whatever be the reason, the discovery of parboiling is one of the most important achievements in food science and the credit of this discovery belongs to India. This method of dehusking has been in vogue in India for centuries in the past. Modern par-boiling rice mills came into existence in the sixties. In Chandrapur district, such types of plants were established in the late seventies. At present more than 20 parboiling rice mills are functioning in the district. They are mostly located at Gondia. Parboiled rice is not locally consumed. It is made for export to other states such as TamilNadu, Kerala, Wst Bengal, Bihar etc., where parboiled rice is in demand since past many years.
Parboiling is a pre-milling process which consists of soaking the raw paddy in hot water for a certain period, depending upon the temperature of hot water and the quality of paddy. The soaked paddy is then subjected to steaming for a short duration. The parboiled paddy is then milled in sheller machine and rice is prepared. Some existing rice mills have installed separate boiler-plants for parboiling process. But newly established rice mills have adopted pressure parboiling method which is more scientific and economical. In this method paddy is only wetted and not soaked. Dandelkar type plants with a capacity of one to two tonnes are installed generally by newly established mills. In parboiling the percentage of recovery is higher and breakage is lower by 2 to 3 percent as compared to raw rice milling. Average recovery of rice from paddy is estimated 72% in hand pounding method and 65% to 71 percent in other milling methods depending upon the quality of the paddy. The percentage of recovery is generally higher by 2 to 3 percent in the case of a bold variety than that of a fine variety of paddy. Parboiled rice is more nutritious than raw rice.

Husk and bran are the two important by-products of paddy. They are both usable as fodder for cattle or
as fuel. Rice bran is useful also as a source of extracting oil. There is a great potential of bran oil industries in Bhandara district. One such industry has already been set up at Bhandara. Broken rice is another by-product of paddy. Broken rice is cheaper than rice. It is a common food for the poor and is also used in the preparation of traditional Gujrati and south Indian dishes such as Idali, Uppuman, Dhokra etc. Parched rice (Murmura), Beaten rice (Poha) and Parched Paddy (Layee or Kheel) are the three main rice products which are made out of paddy. A special class of persons, known as Bhadbhunjas, is engaged in the preparation of Murmura and Layee. Poha or beaten rice is prepared in Poha Mills. There are 117 poha mills in the district, located mostly at market centres such as Gondia, Tumsar, Bhandara, Amgaon, Tirora and Pawani. (10) Poha is popular edible in Vidarbha and elsewhere. Gondia is an important centre for exporting Poha to other parts of India. Gondia is famous for its thin, papery and white coloured poha. The price of poha is higher than that of rice. Therefore, poha millers pay higher prices for paddy and thus sharpen the competition for rice mills which also buy paddy.

Rice Mills working in the district have been mostly in private hands. But since 1960 co-operative rice mills have also been established. At present there
are 26 co-operative rice mills in the district. Most of them have installed sheller cum huller machines. But co-operative rice mills have not been a success for two important reasons (i) there is no arrangement for the pooling of paddy from producers. (ii) there is no sound net work of marketing co-operatives. In Maharashtra, itself, there are co-operative sugar mills in the Western Region, running successfully. Co-operative rice mill in Bhandara district can succeed provided there is proper leadership in the field. Rice growers could form their own co-operative rice mills and run them.

Private rice millers hold commanding position on the rice milling business in Bhandara District. Reputed wholesale grain traders are the owners of different rice mills. It is found that more than 75% sample rice mills are engaged in wholesale trade of paddy and rice. Wholesellers have organised their milling and other businesses by forming various firms. Milling is done by the name of rice mills and purchasing, selling and exporting is done under the name of another firm. This helps them to evade taxation. They purchase paddy directly from the cultivators with the help of brokers. Only 30% of their total annual purchase is made through regulated markets. They sell their processed raw rice in the local market & different terminal markets of Vidarbha.
par-boiled rice is exported to various States viz. Kerala, Tamil Nadu, West Bengal etc. They have appointed their commission agents and brokers in different markets for purchasing and selling of paddy and rice. They greatly influence the demand and supply forces by their sales policy.

About the procurement and selling expenses and milling cost of rice mills, the study reveals that procurement and selling expenses are, more or less, found equal in all the sample mills. But milling cost of huller mills, shellor mills, modern rubber roll shellor mills and par-boiling processing plants are found different in each cases. The procurement and selling expenses paid by the rice millers for one quintal of paddy is estimated Rs. 11.75 and Rs. 7.10 respectively. The cost of gunny bag (Rs. 9.00) is included in procurement expenses. The average cost of milling for one quintal of paddy is shown below in table 2.4.

The table 2.4 shows that the milling cost is different in case of all types of sample rice mills. The milling cost varies, because of labour charges, interest on capital and maintenance expenses. The size of plant, type of power and machine used and degree of capacity utilisation are the other important factors which greatly
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Items</th>
<th>Huller Mills</th>
<th>Sheller Mills</th>
<th>Rubberroll Sheller Mills</th>
<th>Modern Par-boiling Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Amount in Rs.</td>
<td>Amount in Rs.</td>
<td>Amount in Rs.</td>
<td>Amount in Rs.</td>
</tr>
<tr>
<td>1.</td>
<td>Labour Charges</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>2.</td>
<td>Power &amp; Fuel</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>3.</td>
<td>Weighing &amp; Sewing</td>
<td>Nil</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>4.</td>
<td>Depreciation</td>
<td>0.40</td>
<td>0.25</td>
<td>0.25</td>
<td>0.40</td>
</tr>
<tr>
<td>5.</td>
<td>Interest on Capital</td>
<td>0.25</td>
<td>1.20</td>
<td>1.20</td>
<td>1.25</td>
</tr>
<tr>
<td>6.</td>
<td>Maintenance &amp; establishment expenses</td>
<td>0.60</td>
<td>2.25</td>
<td>2.25</td>
<td>3.05</td>
</tr>
<tr>
<td>7.</td>
<td>Loss in Storage (Dryness)</td>
<td>Nil</td>
<td>2.40</td>
<td>22.42</td>
<td>2.40</td>
</tr>
<tr>
<td>8.</td>
<td>Taxes &amp; others</td>
<td>0.75</td>
<td>1.60</td>
<td>1.60</td>
<td>1.60</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td></td>
<td>3.50</td>
<td>10.70</td>
<td>10.70</td>
<td>11.70</td>
</tr>
</tbody>
</table>

Sources: Computed from the informations obtained through field investigations.
influence the milling cost. As shown in the table the average milling cost is estimated at Rs. 3.50 for huller mills, Rs. 10.70 for sheller Mills, Rs. 11.70 for rubber roller sheller mills and Rs. 18.35 for modern par-boiling units. As regards percentage of profit on milling it is estimated 1 to 3% of total cost. The rice millers generally fixed the price of rice by the following formula price of one quintal rice = price of paddy + milling cost - value of by-products + profit (2%). Some rice mills also accept job work for milling on fixed charges. On an average they charged Rs. 5.00 for raw rice and Rs. 10.00 for par-boiled rice as milling charges for one quintal of paddy.

**Estimation of Milling Cost under other studies:**

The milling cost of rice has been also estimated under other earlier studies. Uma J. Lele has estimated Rs. 5.50 to 6.00 per quintal of rice in Tamil Nadu State in 1969 and Rs. 2.70 to Rs. 5.10 per quintal of rice in West Bengal in 1968. (11) Dr. Naidu has estimated Rs. 1.03 excluding fixed cost, for one quintal of rice in Raipur district of Chhattisgarh region in 1971-72; Dr. S.A. Deshpande has estimated labour charges 13.6%, Fuel 9.6%, electricity 2.3%, lubricant 2.3%, Depreciation 1.4%, rent 0.5%, interest on capital 0.8%, taxes 1.1%, cost of paddy 61% and profit 7.4% in 1970 in Bhandara and Chandrapur district of Vidarbha. (13)
REFERENCES


3. Indian Council of agricultural Research : 'Rice in India' ICAR, New Delhi, 1960, P. 305

4. Ibid, P. 329

5. Ibid, P. 329

6. Ibid, P. 329


8. Information obtained from the Food & Civil Supply Office, Collectorate, Bhandara.


10. Information obtained from the Food and Supply Office Collectorate, Bhandara.

